6. IC VOLTAGE CHART

TRANSISTOR

UNIT : V

REF. NO	Tx / Rx	Future	AM			FM			SSB(U/L)			CW		
			E	C	B	E	C	B	E	C	B	E	C	B
Q101	RX	RF GAIN ON/OFF	1.7 2.5	6.6 7.0	2.4 2.7									
Q102	RX		3.2	7.2	0									
Q103	Tx Rx		0 0.7	0.1 3.0	0 0.7									
Q104	TX RX		2.8 0.7	8.0 5.8	2.2 1.3									
Q105	TX RX		0 2.3	0.1 6.5	0.1 3.0									
Q106	TX RX													
Q107	TX RX		0 1.6	0 6.5	0 2.3									
Q108	TX RX		0 0	0 0	0.7 0.7				0 0	0 0.5	0 0			
Q109	TX RX	SQ ON/OFF	0.6 1.1/0.6	5.0 2.8/5.0	1.0 1.7/1.1									
Q118	TX RX		0 0	7.8 8.1	0 0.46									
Q111	TX RX		0 0	0 0	0 0				0 0	0 0	0.7 0.7			
Q114	TX RX		0 0	0 0	0 0.7				0 0	0 0	0 0.7			
Q115	TX RX		0 0	0.7 0	0.1 0									
Q116	TX RX		0.3 0.4	2.8 3.0	0.6 0.7									
Q138	TX RX		8.0 8.0	0 0	7.5 7.5				8.0 8.0	0 0	7.5 7.5			
Q123		PA·PTT ON/OFF	1.2/1.7	6.0/7.0	0.8/1.0									
Q126	TX RX		7.4 7.4	0 0	0 0							0.3 6.5	3.4 8.0	0.9 0.6
Q117	TX RX	SQ ON/OFF	0 0	0 0	0.6 0.6									
Q135	TX RX		0.6 0.6	3.0 3.0	0.6 0.6									
Q128	TX RX											0.5 3.5	0.5 4.8	1.1 3.6
Q125	TX RX		7.3 7.4	7.8 0	8.0 8.0									

TRANSISTOR

UNIT : V

REF. NO	Tx / Rx	Future	AM			FM			SSB(U/L)			CW		
			E	C	B	E	C	B	E	C	B	E	C	B
Q127	TX		0.1	8.1	0									
	RX		7.2	8.0	7.9									
Q136	TX		0	0	0.7									
	RX		0	8.0	0									
Q129	TX		0	0	0	0	0	0.7	0	0	0.7			
	RX		0	0	0	0	0	0.7	0	0	0.7			
Q134	TX		2.9	4.3	2.2									
	RX		0	0.1	0									
Q124	TX		0.6	7.8	1.3									
	RX		0	0	0									
Q133	TX		0	12.3	0.7									
	RX		0	13.0	0.1									
Q132	TX		0	11.5	0.4									
	RX		0	13.0	0									
Q131	TX		0	0	0							0	0	0.6
	RX		0	0	0							0	0	0.6
Q112	TX		0	0	0.3							0	0	0.7
	RX		0	0	0.3							0	0	0.7
Q113	TX		0	0	0.3							0	0	0.5
	RX		0	0	0.3							0	2.5	0
Q119	TX		4.6	6.5	0.1							4.5	6.6	0.8
	RX		4.8	6.5	0							5.1	7.5	0
Q121	TX		7.2	7.5	1.2	7.8	7.5	1.2	7.8	7.5	1.2			
	RX		0	7.5	0	0	7.5	0	0	7.5	0			
Q120	TX		7.8	7.3	7.2	7.8	7.8	7.2	7.8	7.8	7.2			
	RX		0	0	7.2	0	0	0	0	0	0			
Q106	TX		2.6	6.8	3.2				2.5	6.8	3.2	2.5	6.6	3.0
	RX		0	0	0				2.1	5.7	2.7	2.5	6.5	3.0
Q122	TX		0	0	0.2							0	7.2	0.2
	RX		0	0	0.2							0	0	0.7
Q201	RX	NB ON							0.9	7.0	1.5			
Q202	RX	NB ON							0	2.3	0.7			
Q203	RX	NB ON							1.5	6.9	2.3			
Q204	RX	NB ON							0.9	7.2	0			
Q205	RX	NB ON							0	4.2	0			
Q206	RX	NB ON							6.5	0	4.4			
Q207	RX	NB ON							0	0	0			
Q401	RX	NB ON				2.0	5.8	2.6						

IC

UNIT : V

	IC101 NJM2902N		IC103 FDA1905	IC104 NJM4558S		IC105 AN612		IC106 TA7320P		IC107 HA17808W
		SQ			Tx		Tx		Tx	
1	0		6.8	7.6	7.2	3.0	3.0	0	6.7	13.2
2	0		13.2	4.1	4.0	3.2	3.2	0	3.3	0
3	0		12.0	2.7	2.6	3.2	3.2	0	7.7	8.0
4	8.0		4.0	4.1	4.0	0	0	0	7.6	
5	0		0.0	0	0	6.0	5.8	0	0	
6	0		2.4	3.5	3.3	7.4	7.3	0	7.7	
7	0		2.0	7.1	2.3	6.4	4.0	0	4.2	
8	0	6.8	1.5	1.3	5.7			0	4.2	
9	1.7			7.6	7.2			0	7.5	
10	1.7	6.8								
11	0									
12	0									
13	0									
14	0									

IC

UNIT : V

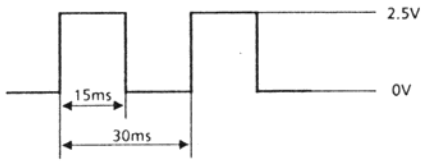
	IC301	IC302	IC303	IC304	IC305	IC306
1	5.0	2.5	0	0	0	8.0
2	0	2.1	0	5.2	8.0	6.0
3	5.0	5.0	0	8.0	8.0	4.0
4	5.0	5.0	1.6	0	0	4.0
5	5.0	0	1.6	8.0	8.0	0
6	0	2.4	5.0	0	0	4.0
7	0	0	2.9	2.8	2.8	4.0
8	5.0	0	0.7	2.8	2.8	3.8~6.0
9	1.7	0		0	0	8.0
10	0			0.6	0.6	
11	0			1.3	1.3	
12	0			0.6	0.6	
13	4.0			1.3	1.3	
14	0			0	0	
15	2.5					
16	2.4					
17	2.0					
18	0					
19						
20						
21						
22						

IC

UNIT : V

	IC307	IC311	IC312	IC314	IC316	IC501
1	8.0	13.8	13.8	5.0	5.0	※
2	7.4	0	0.6	2.0	0	※
3	1.0	8.0	5.6	0	5.0	※
4	1.0			1.2	0	※
5	0			5.0	5.0	※
6	4.2~4.9				5.0	※
7	4.2~4.9				0	※
8	3.5~4.9				0	※
9	8.0				0	※
10					5.0	※
11					5.0	※
12					0	※
13					5.0	※
14					5.0	※
15						3.5
16						1.0
17						4.2
18						4.3
19						0.7
20						0
21						0
22						0

※



TRANSISTOR

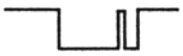
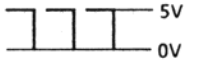
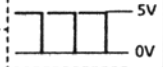
UNIT : V

	E (S)	C (D)	B (G)	REMARKS
Q301	2.5	8.0	0.9	
Q302	3.5	7.8	4.0	
Q303	4.0	8.0	4.6	
Q304	2.9	8.0	3.5	
Q305	0.2	7.7	0	
Q306	0.3	3.9	0	
Q307	0.2	3.8	0	
Q308	4.0	5.3	4.5	
Q311	0 0	0 0	0 0.5	Rx / Tx Meter RF Tx other
Q312	0 0	0 0	0 0.5	Tx Meter MOD Rx / Tx other
Q313	0 0	0 0	0 0.5	Tx Meter CAL Rx / Tx other
Q314	0 0	0 0	0 0.5	Tx Meter SWR Rx / Tx other
Q315	0 0	7.3 0.7	0 0.7	Rx Tx
Q316	0	0.5	0	
Q317	5.0	0	5.0	

IC

UNIT : V

IC315

Pin No.	Voltage		Pin No.	Voltage	
1	5	LCD Change 	17	5	
2	0	LCD Change 	18	0	
3	5	LCD Change 	19	5	
4	0	LCD Change 	20	0	
5	5		21	0	
6	5	0 (Tx Meter RF) / 0 (Rx)	22	5	(F.Knob)
7	5	0 (Tx Meter MOD) / 5 (Rx)	23	0	(F.Knob)
8	5	0 (Tx Meter CAL) / 5 (Rx)	24	5	
9	5	0 (Tx Meter SWR) / 5 (Rx)	25	5	(USB)
10	5	Up/Down/Span/Scan/Meter/Band SW  5V 0V	26	5	(LSB)
11	5		27	5	(CW)
12	5		28	0	5Vpulse (Freq. & TxRx Change)
13	5		29	0	5Vpulse (Freq. & TxRx Change)
14	0	Band/Span/Down ON  5V 0V Meter/Scan/Up ON	30	0	5Vpulse (Freq. & TxRx Change)
15	0	Meter/Scan/Up ON Band/Span/Down ON  5V 0V	31	0	5Vpulse (Freq. & TxRx Change)
16	0	Band/Span/Down ON Meter/Scan/Up ON	32	5	
			33		
			34	0	
			35	0	
			36	5	

IC

UNIT : V

IC315

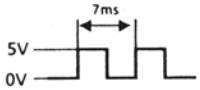
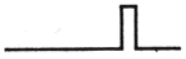
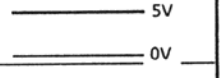
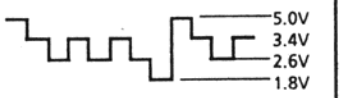
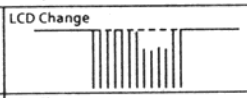
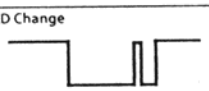
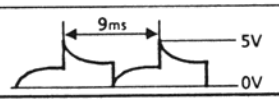
Pin No. \ 0.*KHz	0*	1*	2*	3*	4*	5*	6*	7*	8*	9*
37	0	0	0	0	5	5	5	5	5	5
38	0	5	5	5	0	0	0	5	5	5
39	5	0	5	5	0	5	5	0	5	5
40	5	0	0	5	5	0	5	0	0	5
41	0	0	0	5	0	0	5	5	0	0
42	0	0	0	0	0	5	0	5	0	5

Pin No.	Voltage		Pin No.	Voltage	
43	0		55	0 (SQ Open)	5 (SQ Close)
44	0		56	5	
45	5	0 (Push Mic up SW)	57	0	
46	5	0 (Push Mic Down SW)	58	5	
47	5	0 (PA SW OFF PTT ON Tx)	59	5	
48	5	0 (F.LOCK SW ON)	60	5	
49	0	5 (Power ON)	61	0	LCD Change 
50	5				
51	2.5	4 V_{p-p} (2.00MHz)			
52	2.5	4 V_{p-p} (2.00MHz)	62	5 (Tx)	0 (Rx)
53	0		63	(Tx) 5 (CW) 0 (Rx) 5 (SQ) 0	
54	0		64	5	

IC

UNIT : V

IC502

Pin No.	Voltage		Pin No.	Voltage	
1			11	0	LCD Change 
2			12	0	LCD Change 
3	3.4		13	5	LCD Change 
4	2.6				
5	1.8		14		
6	5.0		15 ~ 18		
7	0				
8	5	LCD Change 	19~32		
9	0	LCD Change 	33	5.0	
10	5	LCD Change 	34~51		
			52		

7. FREQUENCY CHART

FREQUENCIES OF LOCAL OSCILLATORS

$$Fv = F + 10.6950\ (MHz) + \alpha$$

F : TRANSMITING AND RECEIVING FREQUENCY

Fv : VCO OUTPUT FREQUENCY

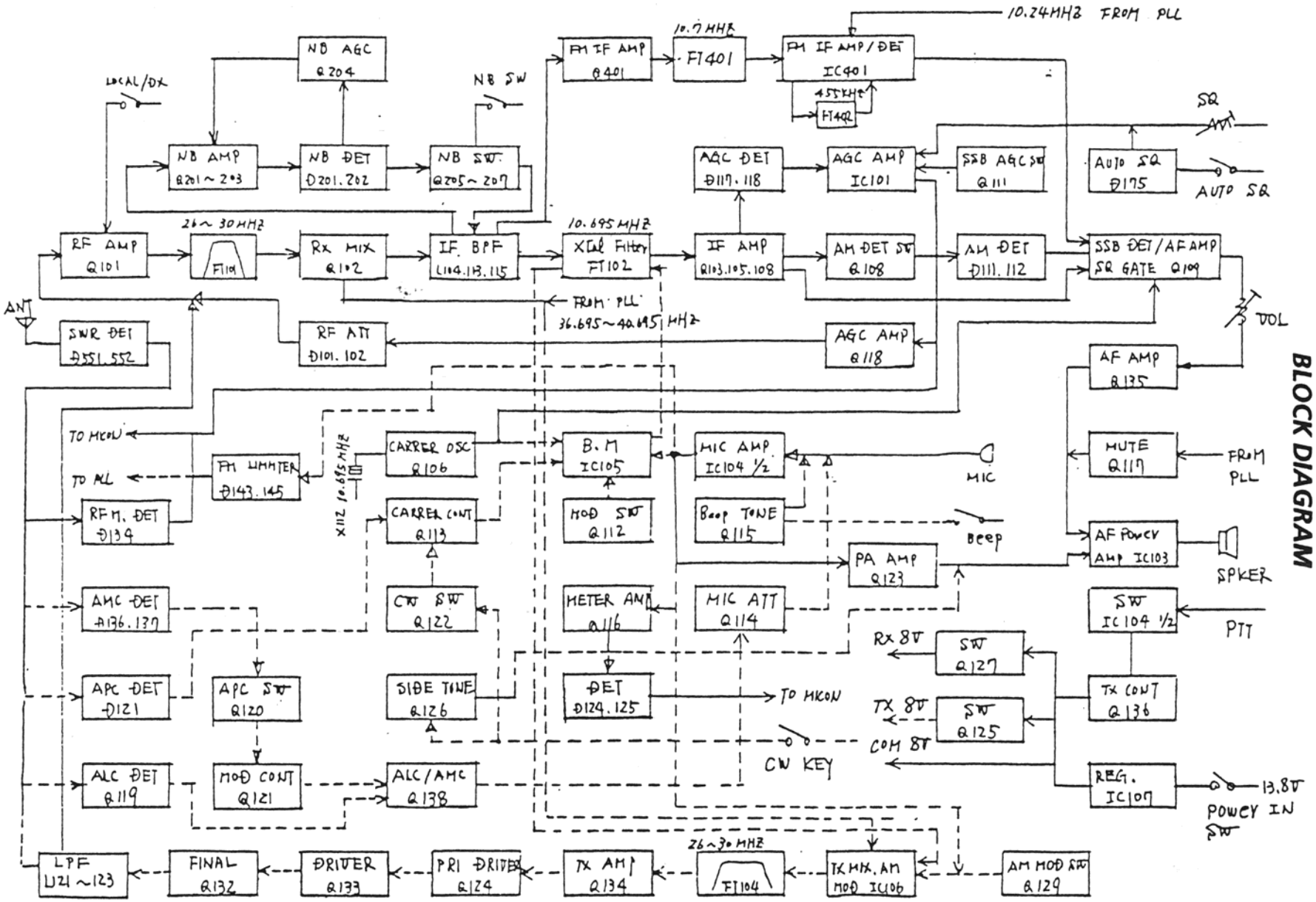
α { 0 (CW / FM / AM); +2.5 kHz (USB); -2.5 kHz (LSB) }

CHANNEL AND FREQUENCY RANGE

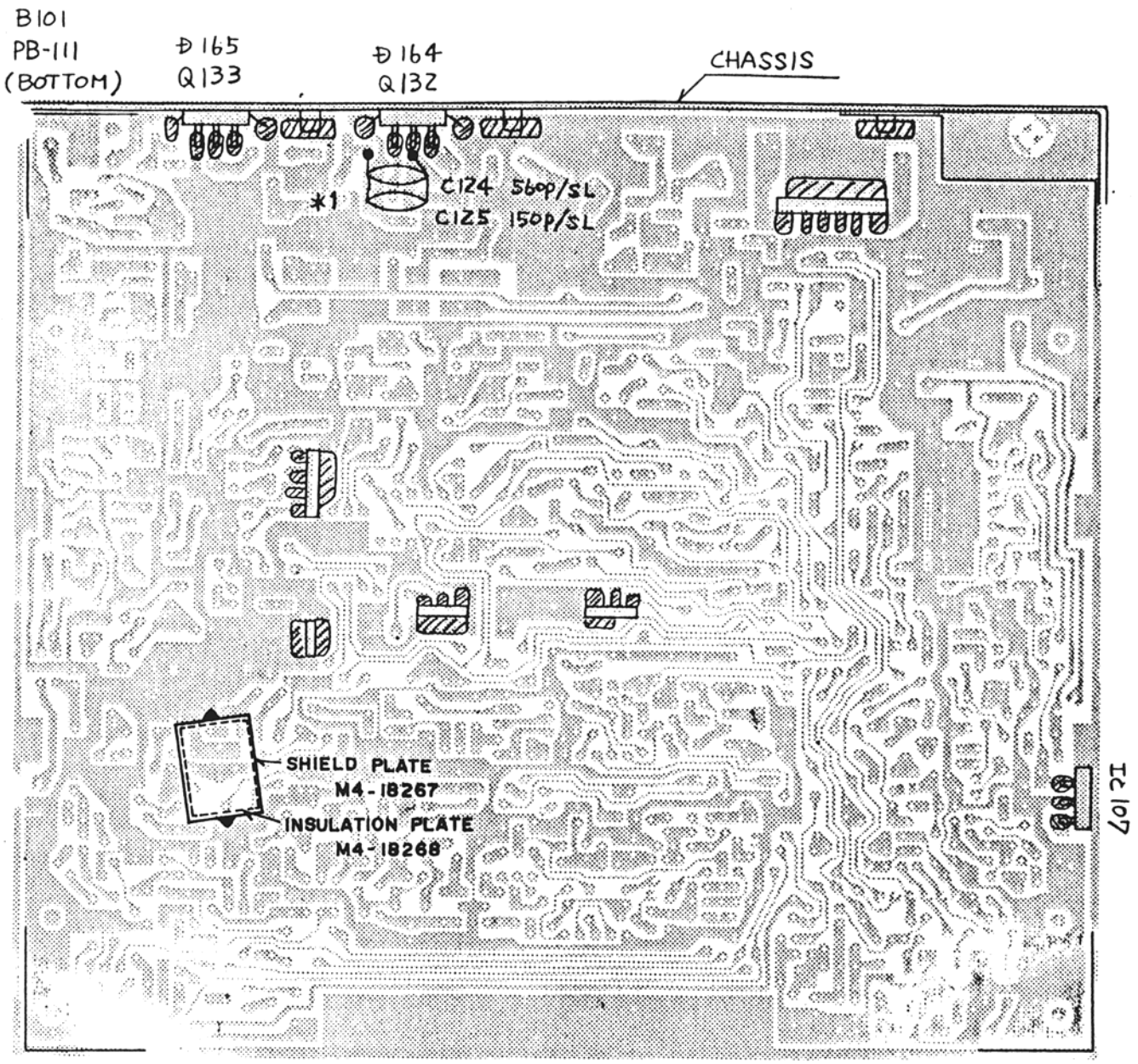
BAND	FREQUENCY RANGE
A	28.0000 ~ 28.4999 MHz
B	28.5000 ~ 28.9999 MHz
C	29.0000 ~ 29.4999 MHz
D	29.5000 ~ 29.6999 MHz

8. TECHNICAL DRAWINGS

BLOCK DIAGRAM

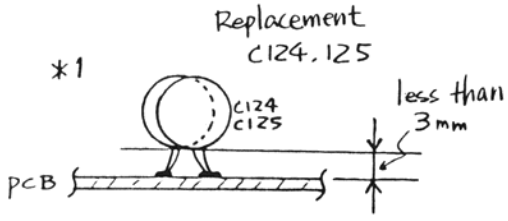


UT-550 MAIN BL DIAGRAM



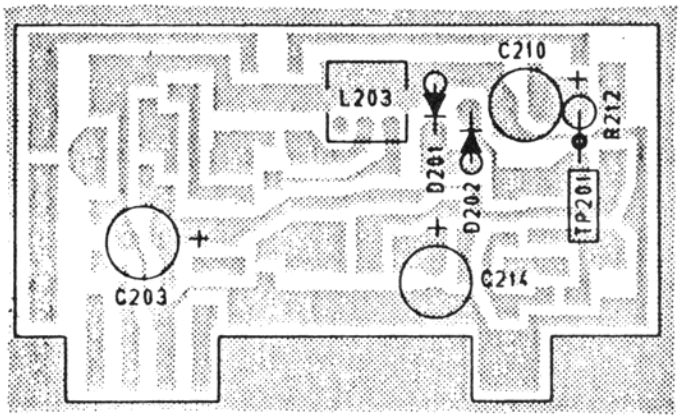
: SOLDERING

NOTE:
1. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)

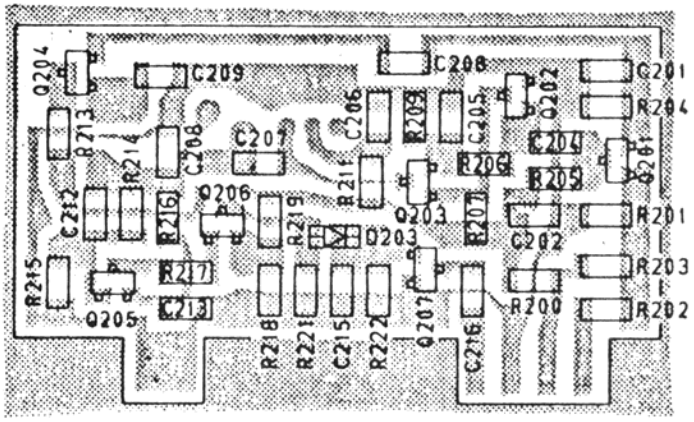


TITLE	MAIN PCB PARTS ASS'Y (BOTTOM)	
DRAWING NO.	E24-7566	REV. MARK

B201 PB-117AA (TOP VIEW)



B201 (BOTTOM VIEW)



C203	16V10
C210	50V0.47 C-095
C214	16V10

D201	1N60AM
D202	1N60AM

R212	100K

L203	LF125

R200	RZ025
R201	10K
R202	220
R203	33K
R204	680
R205	100
R206	47K
R207	1.5K
R208	330
R209	330
R211	68
R213	RZ025
R214	10K
R215	10K
R216	470K
R217	10K
R218	3.3K
R219	330
R221	10K
R222	3.3K

C201	0.0047/X
C202	0.047/C
C204	10P/SL
C205	0.047/C
C206	0.0047/X
C207	0.001/B
C208	82P/B
C209	0.01/Y
C212	330P/B
C213	0.001/B
C215	330P/B
C216	0.01/Y

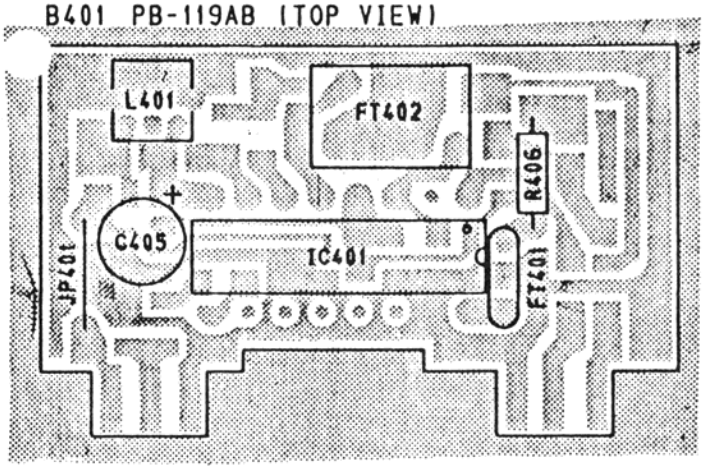
D203	RLS4148

Q201	2SC2814F5
Q202	2SC2814F5
Q203	2SC2814F5
Q204	2SC2812L5
Q205	2SC2812L5
Q206	2SA1179M6
Q207	2SC2814F5

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM. M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/8W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)

TITLE	NB PCB PARTS ASSEMBLY	
E24-7567		REV. MARK

B401 PB-119AB (TOP VIEW)



L401	LF072

IC401	IR3N06

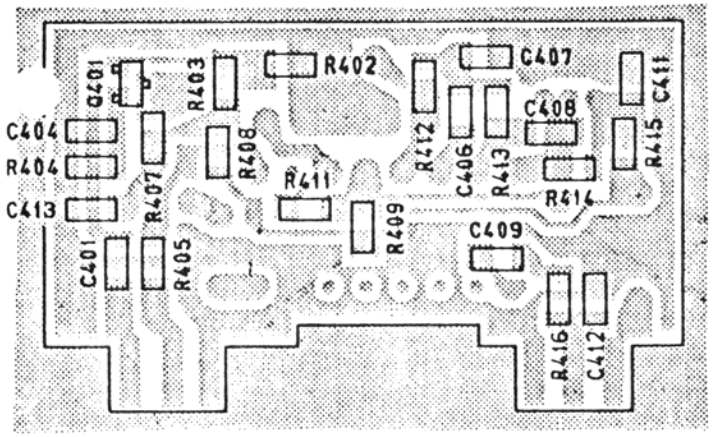
FT401	FL048
FT402	FL066

R406	470 1/6W

C405	10V47 C-095

JP401	7.5

(BOTTOM VIEW)



R402	12K
R403	22K
R404	1K
R405	1K
R407	1K
R408	100
R409	10
R411	2.2K
R412	2.2K
R413	47K
R414	68K
R415	100
R416	10K

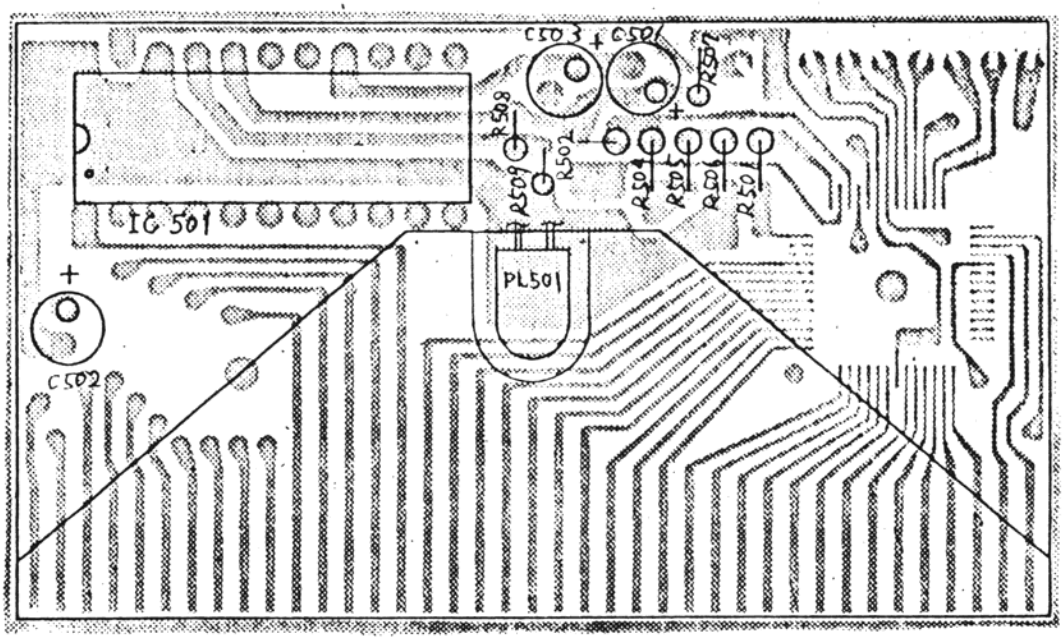
C401	0.01/Y
C404	0.0047/X
C406	0.047/C
C407	0.047/C
C408	18P/RH
C409	0.047/C
C411	0.047/C
C412	0.047/C
C413	0.047/C

Q401	2SC2814F5

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K-KILO OHM. M-MEG OHM)
2. RESISTOR WATTAGES ARE 1/8W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED.(P-MICRO-MICRO FARAD)

TITLE	FM PCB PARTS ASSEMBLY	
E24-7568		REV. MARK

B501 PB112AA/LCD



IC501 ··· IR2429

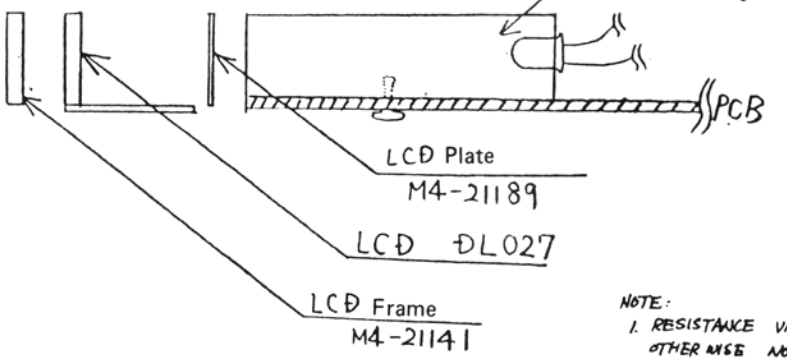
R501 ··· 220k 1/6W
502 ··· 10k
509 ··· 10k
505 ·· 10K
506 ·· 22K
507 ···· 56
508 ···· 47k
509 ···· 10K

C501 ··· 10V 4.7
502 ··· 50V 3.3
503 ··· 6.3V 100

C503
C-156

PL501 ··· PL102

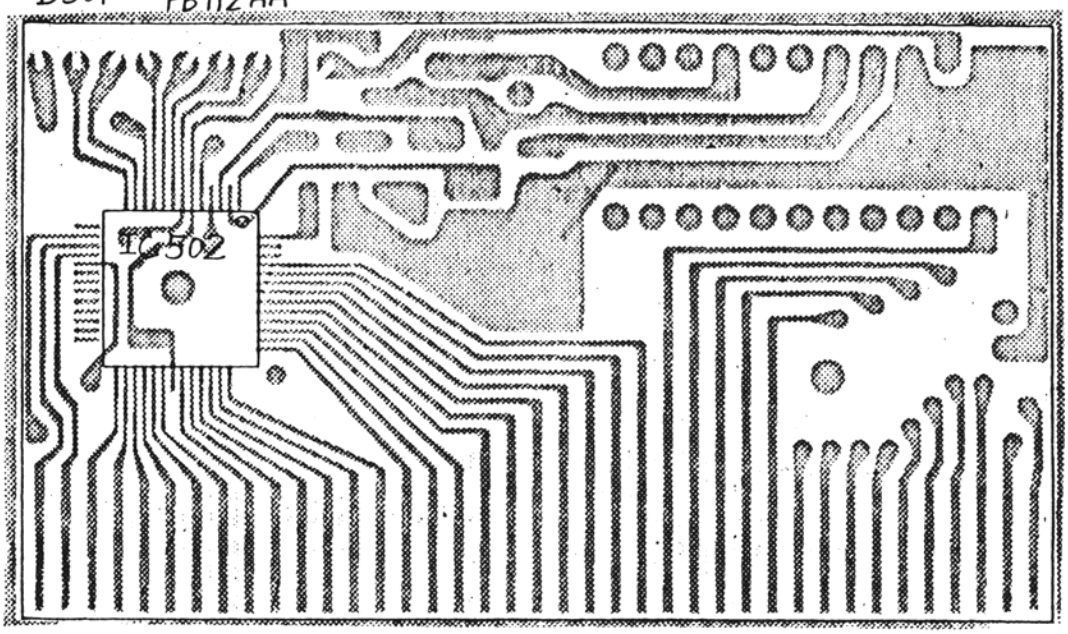
LCD REPLACEMENT (SA)



NOTE:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (k = KILO OHM. M = MEG OHM)
2. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P = MICRO - MICRO FARAD)

TITLE	LCD PCB (TOP) PARTS ASSEMBLY	
DRAWING NO.	E24-7569	REV. MARK

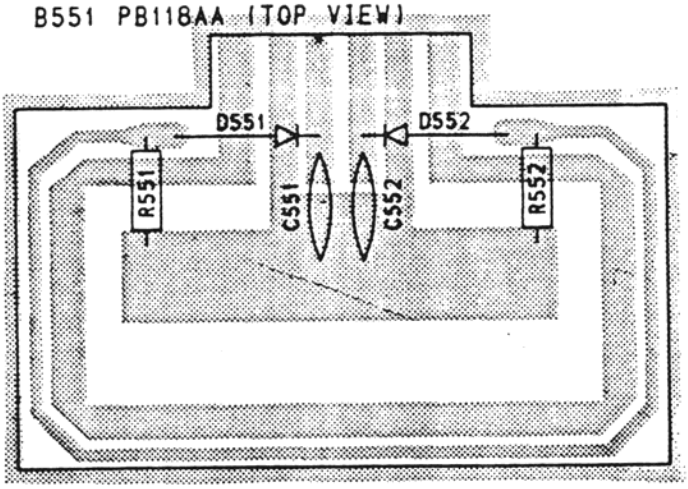
B501 PB112AA



IC502 ···· LH5008TP

TITLE	LCD PCB (BOTTOM) PARTS ASSEMBLY	
DRAWING NO.	E24-7570	REV. MARK

B551 PB118AA (TOP VIEW)



R551	220
R552	150

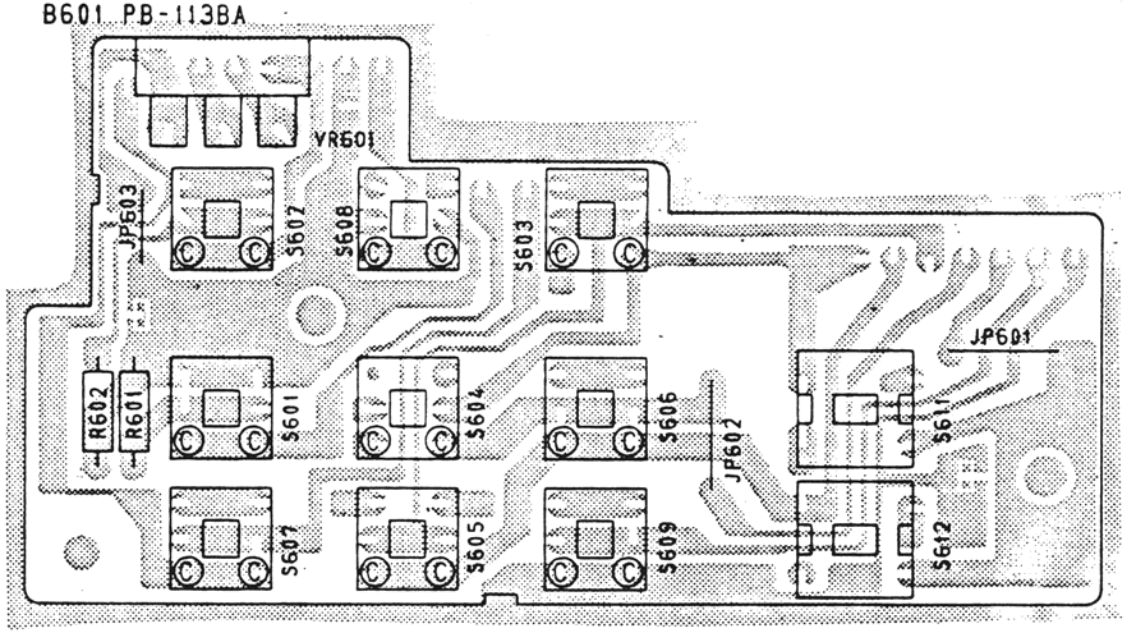
C551	0.01
C552	0.01

D551	1N60P
D552	1N60P

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM. M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/6W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED. (P=MICRO-MICRO FARAD)
4. ALL CAPACITORS TEMPERATURE CHARACTERISTICS ARE YF UNLESS OTHERWISE NOTED.

TITLE	SWR PCB PARTS ASSEMBLY TOP VIEW	
	E24-7571	REV. MARK

B601 PB-113BA



S601	SW549
S602	SW549
S603	SW629
S604	SW629
S605	SW629
S606	SW629
S607	SW549
S608	SW549
S609	SW549
S611	SW560
S612	SW560
-	

R601	47 1/6W
R602	150 1/6W

VR601	RV672 5KB

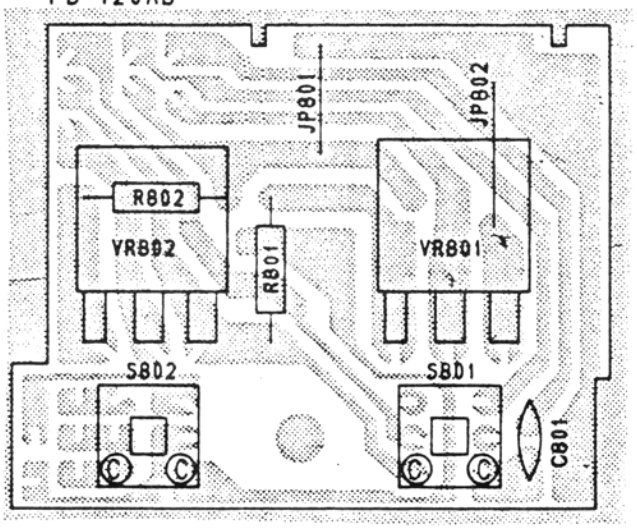
JP601	7.5mm
JP602	7.5mm
JP603	5.0mm

NOTE:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K = KILO OHM. M = MEG OHM)

TITLE SW PCB PARTS ASSEMBLY TOP VIEW	
E24-7572	REV. MARK

B 801

PB-120AB



R801	2.2K
R802	1K

S801	SW549
S802	SW549

VR801	RV652 1KB
VR802	RV679 10KB

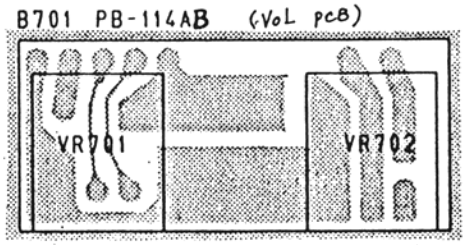
JP801	7.5mm
JP802	10mm

C801	0.022(SR)

NOTES:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM. M=MEG OHM)
2. RESISTOR WATTAGES ARE 1/6W UNLESS OTHERWISE NOTED.
3. CAPACITANCE VALUES ARE INDICATED IN MICRO FARADS UNLESS OTHERWISE NOTED.(P=MICRO-MICRO FARAD)

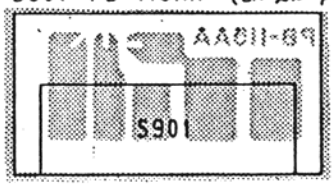
TITLE RIT PCB PARTS ASSEMBLY TOP VIEW	
E24-7573	REV. MARK

B701 PB-114AB (VOL PCB)



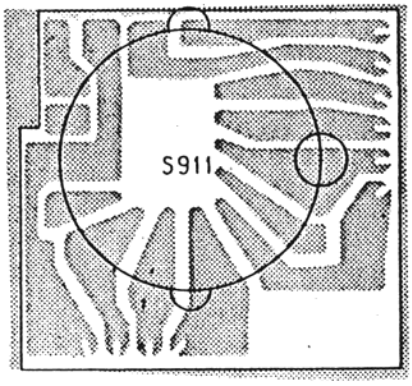
VR701	RV677 50KA
VR702	RV678 50KB

B901 PB-115AA (CH SW PCB)



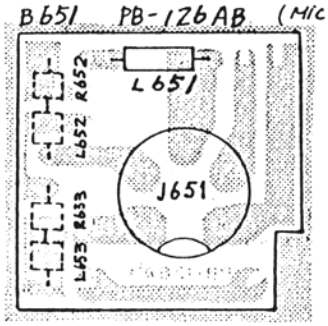
S901	SR404

B911 PB-116AA (MODE SW PCB)



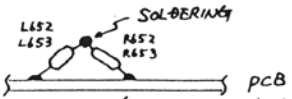
S911	SR405

B651 PB-126AB (MIC JACK PCB)



J651	JK191
L651	LZ051 470μH
L652	LZ051 470μH
L653	LZ051 470μH
R652	1.5K 1/6W
R653	1.5K 1/6W

NOTE:
1. RESISTANCE VALUES ARE SHOWN IN OHMS UNLESS OTHERWISE NOTED. (K=KILO OHM. M=MEGA OHM)



Replacement (BOTTOM SIDE)
L652 & R652, L653 & R653

TITLE	PARTS ASSEMBLY TOP VIEW
E24-7574	REV. MARK